

REMARKS

The above amendments to the above-captioned application along with the following remarks are being submitted as a full and complete response to the Office Action dated November 2, 2005 (U.S. Patent Office Paper No. 10072005). In view of the above amendments and the following remarks, the Examiner is respectfully requested to give due reconsideration to this application, to indicate the allowability of the claims, and to pass this case to issue.

Status of the Claims

As outlined above, claims 1-18 stand for consideration in this application, wherein claims 1-7, 10-13, and 17 are amended to correct formal errors and to more particularly point out and distinctly claim the subject invention. Support Applicant hereby submits that no new matter is being introduced into the application through the submission of this response.

Formal Objections

Claims 2, 5, 6, 10-12, and 17 were objected because of informalities. Claims 2, 5, 6, 10, 12 and 17 have been amended as suggested by the Office Action. Claim 11 has been amended so as to have an appropriate antecedent basis of "said allocating means."

With these amendments, it is respectfully submitted the claims satisfy the statutory requirements. Accordingly, the withdrawal of these objections is respectfully requested.

Formal Rejections

Claim 3 and 4 were rejected under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter of the invention. In particular, the Office Action contends that the limitation "said virtual machine" in claims 3 and 4 lacks sufficient antecedent basis.

Claims 3 and 4 have been amended so as to have sufficient antecedent basis and to particularly point out and distinctly claim the subject matter of the present invention. Accordingly, the withdrawal of these rejections is respectfully requested.

Prior Art Rejections

35 U.S.C. §102(b) rejection

Claims 1, 3, 5, 7, 13, 15, and 16-17, among which claim 3 is dependent upon independent claim 1, claim 7 is dependent upon independent claim 5, claim 15 is dependent upon independent claim 13 and claim 17 is dependent upon independent claim 16, were rejected under 35 U.S.C. §102(b) as being anticipated by Stiffler et al. (hereinafter Stiffler) (U.S. Pat. NO. 6,622,263) Rejections of claims 1, 3, 5, 7, 13, 15, and 16-17 are respectfully traversed for the reasons set forth below.

Claim 1

The Office Action contends that Stiffler teaches a computer system, comprising: a plurality of virtual machines (i.e. physically partitioned computers) formed on a control (i.e. partitioning) program of a computer; and an I/O device connected to a PCI bus (i.e. peripheral bus) of said computer and shared among said plurality of virtual machines; wherein said computer system further includes: a single port (i.e. dual-port) disposed in said I/O device and connected to said PCI bus; PCI connection allocating means for setting a state of logical connection between selected one of said plurality of virtual machines (i.e. secondary computer) and said port; and I/O device switching means for updating said state of logical connection set by said PCI connection allocating means according to a control signal (i.e. takeover procedure) received from said selected virtual machine (i.e. the secondary computer), wherein said selected virtual machine changes its state of logical connection to said I/O device according to the setting by said PCI connection allocating means. Applicants respectfully disagree.

According to the M.P.E.P. §2131, a claim is anticipated under 35 U.S.C. §102 (a), (b), and (e) only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior reference.

Stiffler shows that the storage device must be dual-ported to the primary computer and the secondary computer. In other words, I/O device in Stiffler cannot be a single port. Therefore, “dual ports” in Stiffler cannot be read on “a single port.”

Furthermore, Stiffler shows that both of the primary CPU and the secondary CPU are connected to the dual-port disk unit all the time. Stiffler, however, does not show that one of the CPUs is physically or logically taken off-line when an error occurs in that CPU. Therefore, both of the primary CPU and the secondary CPU may access a disk unit simultaneously, whether or not an error occurs in either of them.

In contrast, the present invention provides that a computer system comprises a single-port disposed to the I/O device. A single port I/O device prevents an error-occurred computer from unnecessarily accessing a disk unit. Furthermore, as recited in claim 1 as amended, only one of the virtual machines, in which an error does not occur, can access the I/O device at a time.

Furthermore, Stiffler neither expressly nor inherently describes that only one of the two CPUs is physically or logically on-line when an error occurs in one of the CPUs. Accordingly, claim 1 is not anticipated by Stiffler.

Claims 5, 13, and 16

Claims 5, 13, and 16 have substantially the same features as those of claim 1. The Office Action's contention regarding claims 5, 13, and 16 are substantially the same as that regarding claim 1. Therefore, the same argument set forth above for claim 1 is applicable here. Accordingly, claim 1 being allowable, claims 5, 13, and 16 must also be allowable.

Claim 3

Claim 3 is dependent upon the independent claim 1. As to dependent claims 3, the argument set forth above is equally applicable here. The base claim being allowable, dependent claim 3 must also be allowable.

Claim 7

Claim 7 is dependent upon the independent claim 5. As to dependent claims 7, the argument set forth above is equally applicable here. The base claim being allowable, dependent claim 7 must also be allowable.

Claim 17

Claim 17 is dependent upon the independent claim 16. As to dependent claims 17, the argument set forth above is equally applicable here. The base claim being allowable, dependent claim 17 must also be allowable.

35 U.S.C. §103(a) rejection

Claims 2, 4, 6, 8, 9-12, 14 and 18 are rejected under 35 U.S.C. §103(a) as being allegedly unpatentable over Stiffler in view of “Computer Input/Output.” These rejections are respectfully traversed for the reasons set forth below.

Claim 2

The Office Action contends that Stiffler teaches all the elements recited in claim 1 upon which claim 2 depends, except that Stiffler does not teach that wherein said I/O device switching means includes interrupting means for updating the setting by said PCI connection allocating means and generating an interruption to notify said selected virtual machine of a change of said state of logical connection to said I/O device, and wherein said selected virtual machine, when receiving said interruption, changes its state of logical connection to said I/O device according to the setting by said PCI connection allocating means. The Office Action further contends that “Computer Input/Output” teaches the Interrupt Driven I/O wherein the sequence of events is as follows: the I/O module interrupts the CPU; the CPU finishes executing the current instruction; the CPU acknowledges the interrupt, the CPU saves its current state; and the CPU jumps to a sequence of instructions which will handle the interrupt (i.e. “I/O module” is read on “I/O device” and “CPU” is read on “computer”), and that it would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify Stiffler to include interrupting means for updating the setting by said PCI connection allocating means and generating an interruption to notify said selected virtual machine of a change of said state of logical connection to said I/O device, and wherein said selected virtual machine, when receiving said interruption, changes its state of logical connection to said I/O device according to the setting by said PCI connection allocating means.

According to the Manual of Patent Examining Procedure (M.P.E.P. §2143),

To establish a prima facie case of obviousness, three basis criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both not found in the prior art, not in the applicant’s disclosure.

First of all, as set forth above, Stiffler does not teach all the elements of claim 1, upon which claim 2 depends. "Computer Input/Output" does not teach all the element of claim 1.

Furthermore, "Computer Input/Output" shows that when the CPU wants to communicate with a device, a CPU issues an instruction to an appropriate I/O module and continues with other operations, and then the I/O module interrupts the CPU to request a data transfer when the device is ready. (Section 4 "Interrupt Driven I/O" of "Computer Input/Output") In other words, Stiffer shows that interruption is initiated by the CPU's accessing the I/O module to transfer data to the device. In contrast, the present invention provides that interruption initiates a transfer of a message that a control program has removed the disk unit to a firmware such as a BIOS or an operating system, irrespective of an operation of the CPU. Therefore, "interruption" in the present invention is completely different from that taught in "Computer Input/Output." Accordingly, it would not have been obvious to a person skilled in the art to create the invention of claim 2.

Claim 4

Claim 4 is dependent upon claim 2. As to dependent claims 4, the argument set forth above is equally applicable here. The base claim being allowable, dependent claim 4 must also be allowable.

Claims 6, 8, 9, 12, 14, and 18

Claims 6, 8, 9, 12, 14 and 18 have substantially the same features as those of claim 2. The Office Action's contention regarding claims 6, 8, 9, 12, 14 and 18 are substantially the same as that regarding claim 2. Therefore, the same argument set forth above for claim 2 is applicable here. Claim 2 being allowable, claims 6, 8, 9, 12, 14 and 18 must also be allowable.

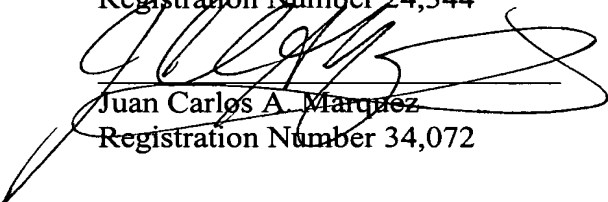
Conclusion

In view of all the above, Applicant respectfully submits that certain clear and distinct differences as discussed exist between the present invention as now claimed and the prior art references upon which the rejections in the Office Action rely. These differences are more than sufficient that the present invention as now claimed would not have been anticipated nor rendered obvious given the prior art. Rather, the present invention as a whole is distinguishable, and thereby allowable over the prior art.

Favorable reconsideration of this application as amended is respectfully solicited. Should there be any outstanding issues requiring discussion that would further the prosecution and allowance of the above-captioned application, the Examiner is invited to contact the Applicant's undersigned representative at the address and phone number indicated below.

Respectfully submitted,

Stanley P. Fisher
Registration Number 24,344



Juan Carlos A. Marquez
Registration Number 34,072

REED SMITH LLP
3110 Fairview Park Drive
Suite 1400
Falls Church, Virginia 22042
(703) 641-4200

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